AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"),

City of Manchester, New Hampshire

is authorized to discharge from the Wastewater Treatment Plant located at

300 Winston Street
Manchester, New Hampshire 03103-6826
and
Twenty-Six (26) Combined Sewer Overflows (CSOs) located throughout the collection system

to receiving waters named

Merrimack River (Treatment Works [Outfall 001] and CSOs [Outfalls 009, 011, 013, 018, 022, 024 025, 030, 031, 042-047, 050, 052 and 053])
Piscataquog River (CS0s [Outfalls 032, 034, 036-039 and 051])
Ray Brook (CS0 [Outfall 054])
with
both Rivers and Brook within the Hydrologic Basin Code 01070002

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on April 1, 2002.

This permit and the authorization to discharge expire at midnight, five (5) years from the effective date.

This permit supersedes the permit issued on September 28, 1990, and modified on May 25, 1993.

This permit consists of **21** pages in Part I including effluent limitations, monitoring requirements, etc., **Attachment A, Freshwater Chronic Toxicity Test Procedures & Protocol; Attachment B, Sludge Compliance Guidance; Attachment C, CSO Discharge Points; Attachment D, Reassessment of Technically Based Industrial Discharge Limits; Attachment E, Industrial Pretreatment Annual Report Requirements; and 35** pages in Part II including General Conditions and Definitions.

Signed this 23rd day of January, 2002

/Signature on File/
Linda M. Murphy, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency
EPA-New England
Boston, Massachusetts

PART I.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1.a. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall serial number 001 treated domestic (household/sanitary/septage), commercial and industrial wastewater effluent and storm water runoff to the Merrimack River. Such discharges shall be limited and monitored by the permittee as specified below. Samples taken in compliance with the monitoring requirements specified below shall be taken at a location that provides a representative analysis of the effluent.

Effluent Characteristic	Discharge Limitations						Monitoring Requirements	
	Average Monthly	Average Weekly (lbs/day)	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type
Flow; MGD	----	----	----		Report	----	Report	Continuous Recorder[1]
$CBOD_5$	7,090	11,350	12,770[2,3]	25 mg/l	40 mg/l	45 mg/l[2,3]	1/Day[4]	24-Hr. Comp.
TSS	8,510	12,770	14,190[2,3]	30 mg/l	45 mg/l	50 mg/l[2,3]	1/Day[4]	24-Hr. Comp.
pH Range[2]				6.5 to 8.0 Standard Units (See I.G.1.a.)			1/Day	Grab
Escherichia coli[2,5,6]; Colonies/100 ml	----	----	----	126		406	1/Day	Grab
Total Residual Chlorine[5,7]; mg/l	----	----	----		0.133	----	0.230	2/Day Grab
Total Recoverable Silver[8]; µg/l	----	----	----		----	----	Report	2/Month 24-Hr. Comp.
Whole Effluent Toxicity								
LC50[9,10,11] Percent Effluent				----	----	100	1/Quarter	24-Hr. Comp.
C-NOEC[10,11,12]; Percent Effluent				----	----	≥8.3	1/Quarter	24-Hr. Comp.
Hardness[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.
Ammonia Nitrogen as Nitrogen[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.
Total Recoverable Aluminum[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.
Total Recoverable Cadmium[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.
Total Recoverable Chromium[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.
Total Recoverable Copper[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.
Total Recoverable Lead[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.
Total Recoverable Nickel[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.
Total Recoverable Zinc[13]; mg/l				----	----	Report	1/Quarter	24-Hr. Comp.

NOTE: See pages 4 through 7 for explanation of superscripts.

PART I.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

1.b. During the period beginning on the effective date of the permit and lasting through the expiration date, the Permittee is authorized to discharge storm water runoff and wastewater from Combined Sewer Outfalls serial numbers 009, 011, 013, 018, 022, 024, 025, 030, 031, 042 through 047, 050, 052 and 053 into the Merrimack River, Outfalls serial numbers 032, 034, 036 through 039 and 051 into the Piscataquog River, and Outfall serial number 054 into Ray Brook. (Refer to **Attachment C**, "Combined Sewer Overflow Discharge Points".) These discharges are authorized only during wet-weather periods. Such discharges shall be limited to the outfalls listed above, and shall be monitored by the Permittee as specified below. Samples specified below shall be taken at a location that provides a representative analysis of the effluent.

Effluent Characteristic	Discharge Limitation	Monitoring Requirement	
	Wet-Weather Event Maximum	Measurement Frequency	Sample Type
Escherichia coli [6,14] (Colonies per 100 ml)	1,000	1/Year	Grab

NOTE: See pages 4 and 7 for explanation of superscripts.

EXPLANATION OF SUPERSCRIPTS APPLICABLE TO PART I.A.1a. and b. on pages 2 and 3.

(1) The effluent flow shall be continuously measured and recorded using a flow meter and totalizer.

(2) Limit is a State Certification Requirement.

(3) During operation of the wet-weather bypass, the permittee shall monitor and "report" the maximum daily concentration and associated load for $CBOD_5$ and for TSS after the last treatment process (i.e., chlorination) on each by-pass day. This is a State Certification Requirement.

(4) Influent and effluent samples shall be **collected daily** using a 24-Hour Composite sample.

(5) Monitoring for *Escherichia coli* bacteria as described in superscript (6) below shall be conducted concurrently with one of the daily monitorings for Total Residual Chlorine as described in superscript (7) below and on page 2 of this permit.

(6) The average monthly value for *Escherichia coli* shall be determined by calculating the geometric mean and the result reported. *Escherichia coli* shall be tested using test method 1103.1 found in Test Methods for *Escherichia coli* and *Enterococci* in Water by the Membrane Filter Procedure, EPA-600/4-85/076 as amended by test method 9213 D.3. found in Standard Methods for the Examination of Water and Wastewater, 19th or subsequent Edition(s) as approved in 40 Code of Federal Regulations (CFR) Part 136.

(7) Total Residual Chlorine (TRC) shall be tested using Amperometric Titration or the DPD Spectrophotometric methods. The EPA approved methods are found in Standard Methods for the Examination of Water and Wastewater, 18th or subsequent Edition(s) as approved in 40 CFR Part 136, Method 4500-Cl E and Method 4500-Cl G or U.S. E.P.A. Manual of Methods of Analysis of Water and Wastes, Method 330.5.

(8) The following set of conditions are applicable to the metals analysis for Total Recoverable Silver, but are not applicable to the metals analyses required for the WET tests.

a. For each sample analyzed, the permittee must determine the Total Recoverable concentration of each metal and report those results on the appropriate Discharge Monitoring Report (DMR).

b. For purposes of analysis and reporting, the permittee shall use the minimum quantification level (ML). In general, the ML is defined as "the level at which the entire analytical system shall give recognizable signal and acceptable calibration points." Specifically, it's defined as the concentration in a sample equivalent to the concentration of the lowest calibration standard analyzed in a specific analytical procedure assuming that all the method-specific sample weights, volumes, and processing steps have been followed. These ML values may be reduced by permit modification as more sensitive test methods are approved by EPA-New England. The permittee must conduct analyses in accordance with any of the three (3) methods specified below and must utilize the specified standard equivalent to the concentration of the ML specified below:

Parameter	Analytical Methods	ML (µg/l)
Silver	Furnace AA; Method 200.7 (ICP); Method 200.8 (ICP/MS)*	1.0

*__Attachment A__--EPA-New England's "Interim Alternate Test Procedure (ATP) Approval under 40 CFR Part 136.5 for NPDES Compliance Samples dated July 5, 2000" Compliance/noncompliance determination will be based for Total Recoverable Silver is equal to the ML listed above. For each metal, any analytical value below that metal's specified ML shall be reported as non-detect on the DMR.

c. Alternate analytical method(s) shall be approved by EPA-New England at the permittee's written request as long as the permittee utilizes method(s) that obtain MLs that are equal to or less than those referenced in (8)b. above. Such a request will be considered a minor modification to the permit.

d. If clean sampling techniques are deemed necessary by either the permittee or EPA-New England, then sampling shall be performed in accordance with U.S. E.P.A. Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels, EPA 821-R-95-034, April 1995, as amended or approved by EPA-New England.

(9) LC50 (lethal concentration 50 percent) is the concentration of wastewater (effluent) causing mortality to 50 percent (%) of the test organisms. The "100 % limit" is defined as a sample which is composed of 100 percent effluent (See B.1 on Page 2 of Part I and **Attachment B** of Part I). Therefore, a 100 % limit means that a sample of 100 % effluent (no dilution) shall cause no greater than a 50 % mortality rate in that effluent sample. The limit is considered to be a maximum daily limit.

(10) The permittee shall conduct chronic (and modified acute) survival and reproduction toxicity tests using the Daphnid (*Ceriodaphnia dubia*) and chronic (and modified acute) survival and growth toxicity tests using the Fathead Minnow (*Pimephales promelas*) on effluent samples following the protocol in **Attachment B** (Freshwater Chronic Toxicity Test Procedure and Protocol dated December 1995). Toxicity test samples shall be collected and tests completed during the calendar quarters ending March 31st, June 30th, September 30th and December 31st each year. Toxicity test results are to be submitted by the 15th day of the month following the end of the quarter sampled. For example, test results for the calendar quarter January through March are due April 15th.

The permittee's authorization to use synthetic dilution water in its toxicity tests granted by EPA letter dated June 5, 1991, is continued in this permit. Accordingly, the permittee is authorized to use an alternate standard dilution water as diluent for the receiving (Merrimack River) water for both Chronic Toxicity Test species. Furthermore, each Chronic Toxicity Test shall use three (3) separate controls composed of: (1) alternate standard dilution water; (2) laboratory water; and (3) site (receiving) water. Please note that the alternate standard dilution water must be of known quality with water quality characteristics such as hardness, pH, specific electrical conductivity, alkalinity, organic carbon and total suspended solids similar to those of the receiving water and not illicit a toxic response. Therefore, it is recommended that the permittee screen the alternate dilution water for suitability prior to toxicity testing.

(11) This permit shall be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements, including chemical specific limits, if the results of the toxicity tests indicate the discharge causes an exceedance of any State water quality criterion. Results from these toxicity tests are considered "New Information" and the permit may be modified as provided in 40 CFR Section 122.62(a)(2).

(12) C-NOEC (Chronic-No Observed Effect Concentration) is defined as the **highest** concentration of toxicant or effluent to which organisms are exposed in a life-cycle or partial life-cycle test which causes no adverse effect on growth, survival, or reproduction at a specific time of observation as determined from hypothesis testing where the test results (growth, survival, and/or reproduction) exhibit a linear dose-response relationship. However, where the test results do not exhibit a linear dose-response relationship, report the **lowest** concentration where there is no observable effect. See **Attachment B** (**VII. Toxicity Test Data Analysis**) on page B-9 for additional clarification. The C-NOEC limit of **"equal to or greater than 8.3 %"** is defined as a sample which is composed of **8.3 % (or greater)** effluent, the remainder being dilution water. This is the minimum percentage of effluent at which no chronic effects will be observed. <u>The limit is considered to be a maximum daily limit</u>.

(13) For each Whole Effluent Toxicity test the permittee shall report on the appropriate DMR, the concentrations of the Ammonia Nitrogen as Nitrogen, Hardness, and Total Recoverable Aluminum, Cadmium, Chromium, Copper, Lead, Nickel and Zinc found in the 100 percent effluent sample. All these aforementioned chemical parameters shall be determined to at least the MLs shown in **Attachment B** on page B-8, or as amended. Also the permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

(14) The Permittee shall sample each CSO outfall listed in **Attachment C** once per year. The sampling shall occur during a wet-weather discharge event. One grab sample shall be obtained one-half hour after the outfall starts discharging. The sampling can be conducted during the Permittee's normal business hours; however, sampling could be conducted outside those hours at the discretion of the permittee. If more than one sample is collected per outfall per wet-weather event, the maximum value for Escherichia coli shall be determined by calculating the geometric mean [Refer to Superscript (6)]. Results from the sampling shall be reported with each December DMR which is due by January 15th. The first round of CSO samples shall be collected beginning with the 2002 calendar year; therefore, the first set of results are to be reported on the December 2002 DMR. If an individual CSO does not discharge or does not discharge sufficiently to collect a sample during the calendar year, report "C" for that outfall on the December DMR.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Continued)

2. The discharge shall not cause a violation of the water quality standards of the receiving water.

3. The discharge shall be adequately treated to insure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum or other visible pollutants. It shall be adequately treated to insure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving waters which is not naturally occurring and would render it unsuitable for its designated uses.

4. The 85 percent removal limit for both $CBOD_5$ and TSS is waived. However, the permittee must **monitor and report** percent-removal data on a daily basis for $CBOD_5$ and for TSS. Percent removal determinations are based on concentration data. Influent samples (24-Hour Composite) shall be collected at the headworks and effluent samples (24-Hour Composite) shall be collected just after the chlorination process. In addition to the reported percent removal data, the permittee must report with each DMR submission daily precipitation from the nearest National Weather Service gage or one deemed appropriate by the permitting authority, and the average daily flow discharged from the POTW broken down by flow quantity processed through the secondary clarifiers and by flow quantity bypassed around those secondary clarifiers.

5. When the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the 34 MGD design flow or 27.2 MGD capacity of the combined primary/secondary portion of the facility, the permittee shall, at the discretion of the New Hampshire Department of Environmental Services, Water Division (NHDES-WD) and EPA-New England submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the permittee may be required to submit plans for facility improvements.

6. All Publicly Owned Treatment Works (POTWs) must provide adequate notice to both EPA-New England and the NHDES-WD of the following:

a. Any new introduction of pollutants into the POTW from an indirect discharger in a primary industry category (see 40 CFR §122 Appendix A as amended) discharging process water; and

b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For purposes of this paragraph, adequate notice shall include information on:

(1) the quantity and quality of effluent introduced into the POTW; and

(2) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

7. The permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts.

B. INDUSTRIAL PRETREATMENT PROGRAM

1. Limitations for Industrial Users

a. A user may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference with the operation or performance of the treatment works. The terms "user", "pass through" and "interference" are defined in 40 CFR Section 403.3.

b. The permittee shall develop and enforce specific effluent limits (local limits) for Industrial User(s), and all other users, as appropriate, which together with appropriate changes in the POTW's Treatment Plant Facilities or operation, are necessary to ensure continued compliance with the POTW's NPDES permit or sludge use or disposal practices. Specific local limits shall not be developed and enforced without individual notice to persons or groups who have requested such notice and an opportunity to respond. Within 120 days of the effective date of this permit, the permittee shall prepare and submit a written technical evaluation (a "report") to EPA-New England analyzing the POTWs current local limits. As part of this evaluation, the Permittee shall assess how the POTW performs with respect to the influent and effluent of pollutants, water quality concerns, sludge quality, sludge processing concerns/inhibition, biomonitoring results, activated sludge inhibition, worker health and safety and collection system concerns. In preparing this evaluation, the Permittee shall complete and submit the attached form shown in **Attachment D (Reassessment of Technically Based Industrial Discharge Limits)** with the technical evaluation to assist in determining whether or not existing local limits need to be revised. Should the permittee have any questions on how to apply **Attachment D** to their particular freshwater environment, they are encouraged to contact the appropriate pretreatment coordinator at EPA-New England. Justifications and conclusions should be based on actual plant data, if available, and should be included in the report. Should the evaluation of the "report" including **Attachment D** by EPA-New England reveal the need to revise local limits, the Permittee shall complete the revisions within 270 days of notification by EPA-New England and submit the revisions to EPA-New England for approval. The Permittee

shall carry out the local limits revisions in accordance with EPA's Guidance Manual for the Development and Implementation of Local Discharge Limitations Under the Pretreatment Program (December, 1987).

2. Industrial Pretreatment Program

   a. The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, procedures, and financial provisions described in the permittee's approved Pretreatment Program, and the General Pretreatment Regulations, 40 CFR Part 403. At a minimum, the permittee must perform the following duties to properly implement the Industrial Pretreatment Program (IPP):

      (1) Carry out inspection, surveillance, and monitoring procedures which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the Pretreatment Standards. At a minimum, all significant industrial users shall be sampled and inspected at the frequency established in the approved IPP but in no case less than once per year and maintain adequate records.

      (2) Issue or renew all necessary industrial user control mechanisms within 90 days of their expiration date or within 180 days after the industry has been determined to be a significant industrial user.

      (3) Obtain appropriate remedies for noncompliance by any industrial user with any pretreatment standard and/or requirement.

      (4) Maintain an adequate revenue structure for continued implementation of the Pretreatment Program.

   b. The permittee shall provide EPA-New England and NHDES-WD with an annual report describing the permittee's pretreatment program activities for the twelve (12) month period ending 60 days prior to the due date in accordance with 40 CFR Section 403.12(i). The annual report shall be consistent with the format described in **Attachment E** of this permit and shall be submitted no later than August 1st of each year.

c. The permittee must obtain approval from EPA-New England prior to making any significant changes to the industrial pretreatment program in accordance with 40 CFR Section 403.18(c).

d. The permittee must assure that applicable National Categorical Pretreatment Standards are met by all categorical industrial users of the POTW. These standards are published in the Federal Regulations at 40 CFR Part 405 et. seq.

e. The permittee must modify its pretreatment program to conform to all changes in the Federal Regulations that pertain to the implementation and enforcement of the industrial pretreatment program. The permittee must provide EPA-New England, in writing, within 180 days of this permit's effective date proposed changes, if applicable, to the permittee's pretreatment program deemed necessary to assure conformity with current Federal Regulations. At a minimum, the permittee must address in its written submission any revisions to its: (1) Enforcement response plan; (2) current EPA-New England approved sewer-use ordinance or regulation; and (3) slug-control evaluation program. The permittee will implement these proposed changes pending EPA-New England's approval under 40 CFR Section 403.18. This submission is separate and distinct from any local limits analysis submission described above.

C. SLUDGE CONDITIONS

Standard Condition and General Requirements

1. The permittee shall comply with all existing federal & state laws and regulations that apply to sewage sludge use and disposal practices and with the CWA Section 405(d) technical standards.

2. The permittee shall comply with the more stringent of either the state (Env-Ws 800) or federal (40 CFR Part 503) requirements.

3. The requirements and technical standards of 40 CFR Part 503 apply to facilities which perform one or more of the following use or disposal practices.

   a. Land application - the use of sewage sludge to condition or fertilize the soil.

   b. Surface disposal - the placement of sewage sludge in a sludge only landfill.

   c. Placement of sludge in a municipal solid waste landfill (See 40 CFR Section 503.4).

   d. Sewage sludge incineration in a sludge only incinerator.

4. The 40 CFR Part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions do not apply to facilities which do not dispose of sewage sludge during the life of the permit, but rather treat the sludge (lagoons-reed beds), or are otherwise excluded under 40 CFR Section 503.6.

5. The permittee shall use and comply with the attached Sludge Compliance Guidance document to determine appropriate conditions. Appropriate conditions contain the following elements.

   General requirements
   Pollutant limitations
   Operational Standards (pathogen reduction requirements and vector attraction reduction requirements)
   Management practices
   Record keeping
   Monitoring
   Reporting

   Depending upon the quality of material produced by a facility all conditions may not apply to the facility.

6. The permittee shall monitor the pollutant concentrations, pathogen reduction and vector attraction reduction for the permittee's chosen sewage sludge use or disposal practices at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year.

less than 290	1/Year
290 to less than 1,500	1/Quarter
1,500 to less than 15,000	6/Year
15,000 plus	1/Month

7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR Section 503.8.

8. The permittee shall submit an annual report containing the information specified in the attached Sludge Compliance Guidance document. Reports are **due annually by February 19th**. Reports shall be submitted to both addresses (EPA-New England and NHDES-WD) contained in the reporting section of the permit.

Specific Conditions Applicable to Manchester's Sewage Sludge Incinerator

9. Pollutant Limitations

   a. Firing of sewage sludge shall not violate the requirements in the National Emission Standard for Beryllium in 40 CFR Part 61, Subpart C, 10 grams per 24-hour period.
   b. Firing of sewage sludge shall not violate the requirements in the National Emission Standard for Mercury in 40 CFR Part 61, Subpart E, 3,200 grams per 24-hour period.

   c. The daily concentration of the metals in sewage sludge fed to the incinerator shall not exceed the limit specified below (dry-weight basis):

	Max. Daily
Arsenic	2,435 mg/kg
Cadmium	38,962 mg/kg
Chromium	1,200,000 mg/kg
Lead	157,626 mg/kg
Nickel	166,634 mg/kg

10. Carbon Monoxide Operational Standards

    a. The exit gas from the sewage sludge incinerator stack shall be monitored continuously for carbon monoxide.

    b. The monthly average concentration of carbon monoxide in the exit gas from a sewage sludge incinerator stack, corrected for zero percent moisture and to seven percent oxygen, shall not exceed 100 parts per million on a volumetric basis.

11. Management Practices

    a. An instrument that continuously measures and records the oxygen concentration in the sewage sludge incinerator stack exit gas shall be installed, operated and maintained for each incinerator in accordance with the manufacturer's written instructions.

    b. The oxygen monitor(s) must meet the performance specifications detailed in **Continuous Emissions Monitoring Guidance for Part 503 Sewage Sludge Regulations EPA**.

    c. Upon completion of the testing to demonstrate compliance with the performance specifications, but not later than 90 days from the effective date of this permit, the operator of the incinerators shall submit to EPA-New England a certification stating that the continuous emissions monitoring system meets the performance specifications detailed in the above referenced guidance.

    d. An instrument that measures and records information used to determine the moisture content in the sewage sludge incinerator stack exit gas continuously, shall be installed calibrated, operated and maintained for each sewage sludge incinerator in accordance with manufacturer's written instructions.

e. An instrument that measures and records combustion temperatures continuously shall be installed, calibrated, operated and maintained for each sewage sludge incinerator in accordance with manufacturer's written instructions.

f. The daily average of the combustion temperatures within the combustion zone of the fluidized bed incinerator shall not exceed 1,550°F. The maximum freeboard temperature shall not exceed 1,650°F.

g. The air pollution control devices shall be operated so that the differential pressure across the venturi scrubber shall be a minimum of 35 inches water column.

h. Sewage sludge shall not be fired in a sewage sludge incinerator if it is likely to adversely affect a threatened or endangered species listed under Section 4 of the Endangered Species Act or its designated critical habitat.

i. The permittee shall notify the EPA-New England if any continuous emission monitoring equipment is shutdown or broken down for more than 72 hours while the incinerator continues to operate.

j. Notification shall include the following:

(1) The reason for the shutdown or break down;
(2) Steps taken to restore the system;
(3) The expected length of the down time; and
(4) The expected length of the incinerator operation during the down time of the monitoring system.

k. Break downs or shutdowns of less than 72 hours shall be recorded in the operations log along with an explanation of the event.

l. Copies of all manufacturer's instructions shall be kept on file and be available during inspections.

12. Monitoring Frequency

a. Beryllium and mercury shall be monitored at a frequency of three (3) times per year, during the months of April, August and December.

b. Either stack testing or sludge testing may be used for demonstration of compliance with the beryllium and mercury requirements in **PART I.C.**9.a. and 9.b., respectively.

c. The pollutants in **PART I.C.**9.c., shall be monitored yearly at the following frequency: 6/year during the months of February, April, June, August, October and December.

d. The operating parameters for the air pollution control devices shall be monitored at a frequency of 1/day.

e. The carbon monoxide concentration in the exit gas, the oxygen concentration in the exit gas, information from the instrument used to determine moisture content, and

combustion temperatures shall be monitored continuously.

13. Sampling and Analysis

a. The sewage sludge shall be sampled at a location which is prior to charging to the incinerator and provides a representative sample of the sewage sludge being incinerated.

b. The metals in the sewage sludge shall be analyzed using **Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, EPA Publication SW-846, Second Edition (1982) with Updates I (April 1984) and II (April 1985) and Third Edition (November 1986) with Revision I (December 1987)**.

c. If emission testing is done for demonstration of NESHAPS, testing shall be in accordance with Method 101A in 40 CFR Part 60, Appendix B, Determination of Particulate and Gaseous Mercury Emissions from Sewage Sludge Incinerators.

d. When sludge sampling is used for demonstration of compliance with NESHAPS, the following equation shall be used:

$$E = \frac{(M) \times (Q) \times (PS)}{1000}$$

Where:
E = Emission Rate, grams/day.
M = Pollutant Concentration in sewage sludge, ug/gram.
Q = Sludge feed rate to incinerator, kg/day.
PS = Percent solids.

When determining emissions for beryllium, multiply above equation by (1 - CE). {CE is the control efficiency for beryllium}

e. Sewage sludge samples for mercury shall be sampled and analyzed using Method 105 in 40 CFR Part 61, Appendix B, "Determination of Mercury in Wastewater Treatment Plant Sewage Sludge."

14. Recordkeeping

The permittee shall develop and retain the following information for five years:

a. The concentration of pollutants in **PART I.C.**9.c. Report the maximum value of each pollutant.
b. The carbon monoxide concentration in the exit gas from each sewage sludge incinerator stack. Report the actual average monthly concentration described in **PART I.C.**10.b.

c. The information that demonstrates that the requirements in the National Emission Standard for beryllium are met. The results of either the emission testing or sludge sampling shall be reported. If sludge sampling is reported, include calculation in **PART I.C.**13.d. for compliance demonstration.

d. The information that demonstrates that the requirements in the National Emissions Standard for mercury are met. The results of either the emission testing or sludge

sampling shall be reported. If sludge sampling is reported, include calculation in **PART I.C.**13.d. for compliance demonstration.

e. The combustion temperatures, including the maximum combustion temperature for each sewage sludge incinerator. Report the actual average temperature within the combustion zone and the maximum freeboard temperature described in **PART I.C.**11.f.

f. The values for the air pollution control device(s) operating parameters. Report the monthly average values.

g. The oxygen concentration and information used to measure moisture content in the exit gas from the sewage sludge incinerator. Report the oxygen concentration and percent moisture results which were used to determine the carbon monoxide values reported in **PART I.C.**14.b.

h. The sewage sludge feed rate to the incinerator. Record the average daily and average monthly feed rate.

i. The stack height of the sewage sludge incinerator.

j. The dispersion factor for the site where the sewage sludge incinerator is located.

k. The control efficiency for lead, arsenic, cadmium, chromium and nickel for each incinerator.

l. The risk specific concentration for chromium, if a site specific risk specific concentration is determined.

m. A calibration and maintenance log for the instrument used to measure the carbon monoxide concentration and oxygen concentration in the exit gas from the sewage sludge incinerator stack, the information needed to determine moisture content in the exit gas, and the combustion temperatures.

15. Reporting

The permittee shall report all the information required in **PARTs I.C.**14.a.- g. **annually on February 19th** for the preceding calendar year for the incinerator just as is required in **PART I.C.**8 for the use and disposal practices specified in the Sludge Compliance Guidance Document. Reports shall be submitted to both addresses (EPA-New England and NHDES-WD) as shown in the **PART F. MONITORING AND REPORTING CONDITIONS** section of this permit.

D. COMBINED SEWER OVERFLOW CONDITIONS

1. Effluent Limitations

a. During wet-weather periods, the permittee is authorized to discharge stormwater/wastewater from combined sewer overflows (CSOs) to receiving waters all of which are listed in **Attachment C**, subject to the following effluent limitations.

(1) The discharges shall receive treatment at a level providing Best Practicable Control Technology Currently Available (BPT), Best Conventional Pollutant Control Technology (BCT) to control and abate conventional pollutants and Best Available Technology Economically Achievable (BAT) to control and abate non-conventional and toxic pollutants. The EPA-New England has made a Best Professional Judgement (BPJ) determination that BPT, BCT and BAT for CSOs include the implementation of the nine Minimum Technology-Based Limitations (MTBLs) specified below otherwise know as Nine Minimum Controls (NMC):

(a) Proper operation and regular maintenance programs for the sewer system and the combined sewer overflow points;

(b) Maximum use of the collection system for storage;

(c) Review and modification of industrial pretreatment program requirements to assure CSO impacts are minimized;

(d) Maximization of flow to the POTW for treatment;

(e) Prohibition of dry-weather overflows from CSOs;

(f) Control of solid and floatable materials in CSO discharges;

(g) Pollution prevention programs that focus on contaminant reduction activities;

(h) Public notification to ensure that the public receives adequate notification of CSO occurrences and CSO impacts; and

(i) Monitoring to effectively characterize CSO impacts and the efficacy of CSO controls.

(2) The Permittee must implement the activities identified in their nine minimum controls documentation titled "Report on Nine Minimum Control Measures" dated May 1995, submitted on May 8, 1995, and any amendments thereto.

b. The discharges shall not cause violations of Federal or State Water Quality Standards in the applicable receiving water.

2. Unauthorized Discharges

The permittee is authorized to discharge only in accordance with the terms and conditions of this permit and only from those outfalls listed in **Attachment C** of this permit. Discharges of wastewater from any other point source not described elsewhere in this permit are not authorized under this permit. Dry-weather overflows are prohibited (NMC at **Part D.**1.a.(1)(e)). All dry-weather sanitary and/or industrial discharges from any CSO must be reported to EPA-New England and the State within 24 hours in accordance with the reporting requirements for plant bypass. (Paragraph D.1.e. of Part II of this permit).

3. Records and Reporting

The permittee shall quantify and record all CSO discharges from outfalls listed in **Attachment C** of this permit. Quantification may be performed either through direct measurement or through an estimation technique. When an estimation technique is used, such as an updated version of the SWMM model already developed for the City's Long-Term Control Plan (LTCP), the permittee shall make reasonable efforts (i.e., gaging, measurements, visual observations, tell-tale monitorings, etc.) to verify the validity of the estimation technique. If the SWMM model is used, it must be updated to reflect current conditions in the City's collection and treatment systems used for CSO abatement. The following information must be recorded for each combined sewer outfall for each discharge event:

- Estimated date of discharge;
- Estimated duration (hours) of discharge;
- Estimated volume (gallons) of discharge; and
- National Weather Service precipitation data from the nearest gage where precipitation data are available at daily (24-hour) intervals and the nearest gage where precipitation data are available at one-hour intervals. Cumulative precipitation per discharge event shall be calculated.

The permittee shall maintain all records of discharges for at least five (5) years after the effective date of this permit.

Annually, no later than January 15th, the permittee shall submit a written certification to EPA-New England and the State which states that all the discharges from combined sewer outfalls were recorded, and all other appropriate reports and records maintained for the previous calendar year.

4. Reopener/Additional CSO Control Measures

This permit may be modified or reissued upon the completion of a long-term CSO control plan. Such modification may include performance standards for the selected controls, post construction water quality assessment program, monitoring for compliance with water quality standards, and a reopener clause to be used in the event that the selected CSO controls fail to meet water quality standards. Section 301(b)(1)(C) requires that a permit include limits that may be necessary to protect Federal and State water quality standards.

E. SPECIAL CONDITIONS

Whole Effluent Toxicity Test Frequency Adjustment

The permittee may submit a written request to the EPA-New England requesting a reduction in the frequency (to not less than once per year) of required toxicity testing, after completion of a minimum of the most recent four (4) successive toxicity tests of effluent, all of which must be valid tests and demonstrate compliance with the permit limits for whole effluent toxicity. Until written notice is received by certified mail from the EPA-New England indicating that the Whole Effluent Testing requirement has been changed, the permittee is required to continue testing at the frequency specified in the respective permit.

pH Limit Adjustment

The permittee may submit a written request to the EPA-New England requesting a change in the permitted pH limit range to be not less restrictive than 6.0 to 9.0 Standard Units found in the applicable National Effluent Limitation Guideline (Secondary Treatment Regulations in 40 CFR Part 133) for this facility. The permittee's written request must include the State's approval letter containing an original signature (no copies). The State's letter shall state that the permittee has demonstrated to the State's satisfaction that as long as discharges to the receiving water from a specific outfall are within a specific numeric pH range the naturally occurring receiving water pH will be unaltered. That letter must specify for each outfall the associated numeric pH limit range. Until written notice is received by certified mail from the EPA-New England indicating the pH limit range has been changed, the permittee is required to meet the permitted pH limit range in the respective permit.

Toxic Pollutant Scans

The permittee shall analyze the effluent from Outfall 001 for **two (2) toxic pollutant scans** conducted during **calendar year 2002**, for the Organic Toxic Pollutants as Volatiles, Acid Compounds, and Base/Neutral Compounds listed in 40 CFR 122, Appendix D, Table II and for the other Toxic Pollutants (Total Recoverable Metals and Cyanide); and Total Phenols in 40 CFR 122, Appendix D, Table III. Samples shall be collected using a grab sample along with samples collected for the quarterly Whole Effluent Toxicity Tests [3rd and 4th calendar quarters of 2002. See superscript (10) on page 5 for exact months]. The reported data are to comply with the QA/QC requirements of 40 CFR 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Results for each individual compound and the method detection limit (MDL), minimum level (ML), or other designated endpoint reflecting the precision of the analytical method used for each compound shall be reported. For Gas Chromatography/Mass Spectroscopy, all results found to be present by spectral confirmation are to be reported. These results are to be submitted on a separate form by the 15th day of the month following the end of the quarter sampled which are the same submission dates as for the WET tests [See superscript (10) on page 5 of this permit]. This permit condition shall be satisfied after the submission of two consecutive quarterly test results.

F. MONITORING AND REPORTING CONDITIONS

Monitoring results shall be summarized for each calendar month and reported on separate Discharge Monitoring Report Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed reporting period.

Signed and Dated original DMRs and all other reports required herein, shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency
Water Technical Unit (SEW)
P.O. Box 8127
Boston, Massachusetts 02114-8127

Duplicate signed copies of all reports required herein shall be submitted to the State at:

New Hampshire Department of Environmental Services
Water Division
Wastewater Engineering Bureau
6 Hazen Drive, P.O. Box 95
Concord, New Hampshire 03302-0095

G. STATE PERMIT CONDITIONS

1. The permittee shall comply with the following conditions which are included as State Certification requirements.

   a. The pH range of 6.5-8.0 Standard Units (S.U.) must be achieved in the final effluent unless the permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring receiving water pH is not significantly altered by the permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside of the range of 6.0 to 9.0 S.U., which is the federal effluent limitation guideline regulation for pH for secondary treatment and is found in 40 CFR §133.102(c).

   b. Pursuant to State Law NH RSA 485-A:13 and the New Hampshire Code of Administrative Rules, Env-Ws 706.08(b) and Env-Ws 904.08 the following submissions shall be made to NHDES-WD by a municipality proposing to accept into its POTW (including sewers and inteceptors):

      (1) A "Sewer Connection Permit" request form for:

         (a) Any proposed sewerage, whether public or private;

         (b) Any proposed wastewater connection or other discharge in excess of 5,000 gallons per day;

         (c) Any proposed wastewater connection or other discharge to a wastewater treatment facility operating in excess of 80 % design flow capacity; and

         (d) Any proposed connection or other discharge of industrial wastewater, regardless of quality or quantity.

      (2) An "Industrial Discharge Permit Request Application" form for any new or increased loadings of industrial waste, as defined in RSA 485-A:2, VI.

   c. The permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:12).

   d. Any modifications of the Permittee's Sewer-Use Ordinance, including local limitations on pollutant concentrations, shall be submitted to the NHDES-WD for approval prior to adoption by the permittee.

e. Within 90 days of the effective date of this permit, the permittee shall submit to NHDES-WD a copy of its current sewer-use ordinance and a current local limits. Submittal shall include adoption dates for the documents and a narrative indicating any anticipated changes.

f. Within 120 days of the effective date of this permit, the permittee shall submit to the NHDES-WD a current list of all Class I, II and Class III users (as defined in the EPA approved Industrial Pretreatment Program) discharging industrial waste to the municipal wastewater treatment plant. As a minimum, the list shall indicate the name and address of each industry. The City must have supporting files that contain the following information: telephone number, contact person, facility description, production quantity, products manufactured, industrial processes used, chemicals used in processes, existing level of pretreatment, and type and class of existing discharge permit(s). The City will also include a listing of all exempt industrial users (Class IV designation as defined in the EPA approved Industrial Pretreatment Program) discharging industrial waste to the municipal wastewater treatment plant that includes the facility name and location. Submittal shall include a blank or typical permit for each classification and a description of the classification system.

2. This NPDES Discharge Permit is issued by the EPA-New England under Federal and State law. Upon final issuance by the EPA-New England, the NHDES-WD may adopt this permit, including all terms and conditions, as a State permit pursuant to RSA 485-A:13.

Each Agency shall have the independent right to enforce the terms and conditions of this Permit. Any modification, suspension or revocation of this Permit shall be effective only with respect to the Agency taking such action, and shall not affect the validity or status of the Permit as issued by the other Agency, unless and until each Agency has concurred in writing with such modification, suspension or revocation.

NPDES PERMIT REQUIREMENT FOR INDUSTRIAL PRETREATMENT ANNUAL REPORT

The information described below shall be included in the pretreatment program annual reports:

1. An updated list of all industrial users by category, as set forth in 40 CFR §403.8(f)(2)(i), indicating compliance or noncompliance with the following:

   - Baseline monitoring reporting requirements for newly promulgated industries,
   - Compliance status reporting requirements for newly promulgated industries,
   - Periodic (semi-annual) monitoring reporting requirements,
   - Categorical standards, and
   - Local limits;

2. A summary of compliance and enforcement activities during the preceding year, including the number of:

   - Significant industrial users inspected by POTW (include inspection dates for each industrial user),
   - Significant industrial users sampled by POTW (include sampling dates for each industrial user),
   - Compliance schedules issued (include list of subject users),
   - Written notices of violations issued (include list of subject users),
   - Administrative orders issued (include list of subject users),
   - Criminal or civil suits filed (include list of subject users) and,
   - Penalties obtained (include list of subject users and penalty amounts);

3. A list of significantly violating industries required to be published in a local newspaper in accordance with 40 CFR §403.8(f)(2)(vii);

4. A narrative description of program effectiveness including present and proposed changes to the program, such as funding, staffing, ordinances, regulations, rules and/or statutory authority;

5. A summary of all pollutant analytical results for influent, effluent, sludge and any toxicity or bioassay data from the wastewater treatment facility. The summary shall include a comparison of influent sampling results versus threshold inhibitory concentrations for Manchester's Wastewater Treatment Facility and effluent sampling results versus water quality standards. Such a comparison shall be based on the sampling program described in the paragraph below or any similar sampling program described in this Permit.

At a minimum, annual sampling and analysis of the influent and effluent of Manchester's Wastewater Treatment Plant shall be conducted for the following pollutants:

a.) Total Recoverable Arsenic
b.) Total Recoverable Cadmium
c.) Total Recoverable Chromium
d.) Total Recoverable Copper
e.) Total Cyanide
f.) Total Recoverable Lead
g.) Total Recoverable Mercury
h.) Total Recoverable Nickel
i.) Total Recoverable Silver
j.) Total Recoverable Zinc

The sampling program shall consist of one 24-hour flow-proportioned composite and at least one grab sample that is representative of the flows received by the POTW. The composite shall consist of hourly flow-proportioned grab samples taken over a 24-hour period if the sample is collected manually or shall consist of a minimum of 48 samples collected at 30 minute intervals if an automated sampler is used. Cyanide shall be taken as a grab sample during the same period as the composite sample. Sampling and preservation shall be consistent with 40 CFR Part 136.

6. A detailed description of all interference and pass-through that occurred during the past year;

7. A thorough description of all investigations into interference and pass-through during the past year;

8. A description of monitoring, sewer inspections and evaluations which were done during the past year to detect interference and pass-through, specifying parameters and frequencies;

9. A description of actions being taken to reduce the incidence of significant violations by significant industrial users; and,

10. The date of the latest adoption of local limits and an indication as to whether or not the Manchester's Wastewater Treatment Facility is under a State or Federal compliance schedule that includes steps to be taken to revise local limits.

Combined Sewer Overflow Discharge Points
Wastewater Collection System
Manchester, New Hampshire

COMBINED SEWER OUTFALL NUMBER	LOCATION	RECEIVING WATER
009	Poor Street	Merrimack River
011	Schiller Street	Merrimack River
013	Hancock Street (West)	Merrimack River
018	Turner/Ferry Streets	Merrimack River
022	Bridge Street (West)	Merrimack River
024	Bremer Street	Merrimack River
025	Lorraine Street	Merrimack River
030	Victoria Street	Merrimack River
031	Stark Brook	Merrimack River
032	Electric Street	Piscataquog River
034	Sullivan Street	Piscataquog River
036	Varney Street	Piscataquog River
037	South Main Street (North)	Piscataquog River
038	South Main Street (South)	Piscataquog River

ATTACHMENT C (Continued)

COMBINED SEWER OUTFALL NUMBER	LOCATION	RECEIVING WATER
039	Third Street	Piscataquog River
042	Crescent Road	Merrimack River
043	Tannery Brook	Merrimack River
044	Cemetery Brook	Merrimack River
045	Granite Street	Merrimack River
046	Bridge Street (East)	Merrimack River
047	Pennacook Street	Merrimack River
050	WWTP Manhole #1	Merrimack River
051	West Side Pumping Station Emergency Overflow	Piscataquog River
052	WWTP Manhole #2	Merrimack River
053	Walnut/North Streets and Canal/West Pennacook Streets	Merrimack River
054	River Road	Ray Brook